



**U.S. House of Representatives**  
**Committee on Transportation and Infrastructure**  
**Washington, DC 20515**

**James L. Oberstar**  
**Chairman**

**John L. Mica**  
**Ranking Republican Member**

David Heymsfeld, Chief of Staff  
Ward W. McCarragher, Chief Counsel

April 16, 2007

James W. Coon II, Republican Chief of Staff

**SUMMARY OF SUBJECT MATTER**

**TO:** Members of the Subcommittee on Water Resources and Environment

**FROM:** Subcommittee on Water Resources and Environment Staff

**SUBJECT:** Hearing on Nonpoint Source Pollution: The Impacts of Agriculture on Water Quality

**PURPOSE OF HEARING**

On Thursday, April 19, 2007, at 2:00 p.m., in Room 2167 Rayburn House Office Building, the Subcommittee on Water Resources and Environment will receive testimony from representatives from the United States Department of Agriculture's Natural Resources Conservation Service, the U.S. Environmental Protection Agency, the City of Waco, Texas, the American Water Works Association, academia, and environmental and agricultural organizations on the impact of agricultural run-off on water quality.

**BACKGROUND**

This memorandum briefly summarizes nonpoint source pollution. It then focuses in more detail on agricultural runoff. Agricultural runoff is a form of nonpoint source pollution.

**Nonpoint Source Water Pollution**

Nonpoint source (NPS) pollution emanates from diffuse sources. It is pollution that enters waters through a pathway other than a discernible, confined and discrete conveyance such as a pipe, ditch or channel. NPS pollution occurs after rainwater or snowmelt moves across the ground and into a water body. As the runoff moves over the ground it may pick up natural and man-made pollutants. These pollutants are eventually deposited in water bodies.

NPS pollution encompasses a wide variety of pollutants and sources. These include:

- Excess fertilizers, herbicides, and pesticides from agricultural lands and residential areas;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;
- Atmospheric deposition of particulates, toxic chemicals, and metals;
- Oil, grease, heavy metals, and toxic chemicals from urban stormwater runoff, including runoff from roads, and energy production;
- Salt from irrigation practices and acid drainage from abandoned mines; and
- Bacteria, pathogens, and nutrients from livestock, pet wastes, wildlife, and faulty septic systems.

The successes of the Clean Water Act in improving water quality have primarily resulted from enforceable technology-based efforts to control point sources of pollution. Point sources are defined as discernable, confined and discrete conveyances, such as municipal or industrial sources. Since passage of the Clean Water Act (CWA, or the Act) in 1972, reliance on an enforceable permit program has resulted in decreased water pollution from point source conveyances.

For example, in 1968, sewage treatment facilities served approximately 140 million people in this country, many at a primary treatment level.<sup>1</sup> Today, after Federal investments of more than \$82 billion in wastewater assistance since the passage of the Clean Water Act, 207.8 million people, representing more than 71 percent of the total population, are serviced by more than 16,000 publicly owned treatment works providing secondary or more advanced treatment.<sup>2</sup>

In 1968, about 39 percent (54.2 million) of the 140 million people served by publicly owned treatment works received less than secondary treatment (raw and primary). By 2000, the last year data are available, this percentage was reduced to just over two percent (6.4 million) of the 207.8 million people served by publicly owned treatment works.<sup>3</sup> In addition, the U.S. population served by publicly owned treatment works with secondary or greater treatment more than doubled between 1968 and 1996.<sup>4</sup>

However, unlike the enforceable requirements of the Act in controlling point sources, the Clean Water Act does not require the implementation or enforcement of any nonpoint source management plans, such as buffer strips or nutrient management plans, to reduce polluted runoff. The Act does authorize financial and technical assistance to states for the development and implementation of state nonpoint source management plans (section 319), which should include the identification of voluntary best management practices for reducing nonpoint sources of pollution.

---

<sup>1</sup> U.S. EPA. "Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment." June 2000.

<sup>2</sup> U.S. EPA. "Clean Watersheds Needs Survey 2000: Report to Congress." August 2003.

<sup>3</sup> Should all of the projects called for in the 2000 Needs Survey be constructed, the number of facilities that provide less-than secondary treatment is projected to decline from 47 facilities serving 6.4 million to 27 facilities serving 3.9 million, nearly all of whom (99.99 percent) will be served by facilities with special waivers allowing the discharge of less than secondary treated effluent to deep, well-mixed ocean waters. See U.S. EPA. "Clean Watersheds Needs Survey 2000: Report to Congress." August 2003, and U.S. EPA. "Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment." June 2000.

<sup>4</sup> U.S. EPA. "Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment." June 2000.

In addition, the Act provides for the implementation of the Total Maximum Daily Load (TMDL) program, which determines the maximum pollutant load a water body can handle without becoming impaired, both from point and nonpoint sources of pollution. EPA has also recently advocated a watershed approach to holistically address all forms and sources of water pollution on a watershed basis. (*See Appendix for a more detailed description of these programs.*)

The United States Environmental Protection Agency (EPA), the Office of Management and Budget, and the states report that NPS pollution is now the leading remaining source of water quality problems.<sup>5,6</sup> While the effects may vary by specific water body, the EPA reports that NPS pollution has harmful effects on drinking water supplies, recreation, fisheries, and wildlife.<sup>7</sup>

In its 2006-2011 Strategic Plan, EPA has identified 39,798 “impaired” water bodies.<sup>8,9</sup> A water body is designated as impaired if one or more of the “uses” designated in water quality standards is not being attained. Uses are identified by taking into consideration the use and value of the water body for a combination of public water supply, fish, shellfish, and wildlife protection, or for recreational, agricultural, industrial, or navigational purposes. According to the 1998 Clean Water Act Section 303(d) list, 43 percent of water quality impairments were attributed exclusively to nonpoint source pollution. The remaining 47 percent were attributed to both point and nonpoint source pollution. Regulation of discharges from point sources is still critical to maintaining water quality because point source pollution continues to play a part in water quality impairment. However, NPS pollution is now the leading cause.

### **Agricultural Runoff and Water Quality**

The Federal Government has long recognized the role of agricultural runoff in NPS pollution. The Senate report to the 1972 Clean Water Act amendments stated:

Agricultural runoff, animal wastes, soil erosion, fertilizers, pesticides and other farm chemicals that are part of runoff...are major contributors to the Nation’s water pollution problem.<sup>10</sup>

Today, agricultural runoff continues to impair many of the nation’s water bodies. Agricultural runoff consists of pollutants from farming and ranching, including sediments, nutrients, pathogens, pesticides, metals, and salts that are picked up by rainfall and snowmelt and eventually deposited into water bodies. Various types of water bodies can be affected by agricultural runoff NPS pollution including lakes, rivers, wetlands, coastal waters and estuaries, as well as groundwater. Agricultural runoff NPS pollution can be transported over very long distances through watersheds. For example, some agricultural runoff NPS pollution that ends up in the Chesapeake Bay originated from the upper reaches of the

---

<sup>5</sup> <http://www.epa.gov/owow/nps/qa.html>

<sup>6</sup> <http://www.whitehouse.gov/omb/expectmore/detail/10000224.2004.html>

<sup>7</sup> <http://www.epa.gov/owow/nps/qa.html>

<sup>8</sup> EPA 2006-11 Strategic Plan, p. 47

<sup>9</sup> This number is the 2002 baseline and is being used by the EPA for subsequent performance measurement and reporting.

<sup>10</sup> Congressional Research Service, *History of the Water Pollution Control Act Amendments of 1972*, ser. 1, 93d Cong., 1st sess. (1972), 1457

Susquehanna River in New York State. And the hypoxia, or “dead”, zone in the Gulf of Mexico is caused, in part, by pollutants in agricultural runoff originating 1000 miles upstream along the Mississippi River.

The Federal Government currently has a number of programs across a variety of federal agencies dedicated to reducing agricultural runoff. However, according to the USDA and EPA Office of Inspector General, these programs are not adequately coordinated.

The United States has more than 947 million acres of agricultural lands, and over 2 million farms. When they are not managed in a way to minimize pollutants from running off into water bodies, activities on farms and ranches can negatively impact water quality. Agricultural practices that could cause agricultural NPS pollution include improper or excessive application of pesticides, fertilizer, and irrigation water, improperly located or managed animal feeding operations, and plowing too often or too close to a waterbody.

The 2000 *National Water Quality Inventory* reported that agricultural NPS pollution is the leading source of water quality problems on assessed rivers and lakes, the second largest source of impairment to wetlands, and a major contributor to the impairment of coastal estuaries and groundwater.<sup>11</sup> The *National Water Quality Inventory – 2000 Report* does not include data on all of the nation’s water bodies. Instead, it includes those waters that have been assessed by the states at the time of the report’s release.<sup>12</sup> The following table highlights the agricultural runoff findings of those water bodies assessed in the 2000 *National Water Quality Inventory*.

Water Body Type	Area Impacted by Agricultural Runoff	Assessed Impaired Waters: Impairment due to Agricultural Runoff
Rivers and Streams <sup>13</sup>	128, 859 river and stream miles	48%
Lake <sup>14</sup>	3,158,393 million acres	41%
Coastal <sup>15</sup>	2,811 estuarine square miles	<20%
Great Lakes Shoreline (shoreline miles) <sup>16</sup>	75 shoreline miles	<2%

Typical pollutants contained in agricultural runoff NPS pollution include nutrients, pesticides, sediment, and animal waste, among others. These pollutants can lead to water body impairments that include ecosystem damage, as well as threats to human health.

<sup>11</sup> EPA. 2005. “Protecting Water Quality from Agricultural Runoff.” EPA 841-F-05-001. ([http://www.epa.gov/owow/nps/Ag\\_Runoff\\_Fact\\_Sheet.pdf](http://www.epa.gov/owow/nps/Ag_Runoff_Fact_Sheet.pdf))

<sup>12</sup> The states assessed 19% of the nation’s total river and stream miles, 43% of the its lake, pond, and reservoir acres, 36% of its estuarine square miles, and 92% of Great Lakes shoreline miles for the *National Water Quality Inventory – 2000 Report*

<sup>13</sup> EPA – Office of Water. 2000. *National Water Quality Inventory – 2000 Report*. pp. 13-14

<sup>14</sup> EPA – Office of Water. 2000. *National Water Quality Inventory – 2000 Report*. p. 22

<sup>15</sup> EPA – Office of Water. 2000. *National Water Quality Inventory – 2000 Report*. pp. 30-31

<sup>16</sup> EPA – Office of Water. 2000. *National Water Quality Inventory – 2000 Report*. p.35

- **Nutrients:** Farmers apply nutrients, or fertilizers, such as nitrogen, phosphorous, and potassium to fields to increase production. When nutrients are applied prior to rainfall, or in excess quantities, they can wash into aquatic ecosystems. The National Research Council has highlighted nitrogen as the major source of coastal water impairment leading to hypoxia: nutrient over-enrichment that eventually leads to depletion of necessary dissolved oxygen supplies in aquatic, estuarine, and marine ecosystems.<sup>17</sup> In addition to hypoxia, nutrients can cause algal blooms that can disrupt recreational activities such as swimming and boating, as well as cause foul taste and odor in drinking water. High concentrations of nitrates in drinking water can also cause “blue baby syndrome,”<sup>18</sup> a potentially fatal disease in infants.<sup>19</sup>
- **Pesticides:** Pesticides include insecticides, herbicides, and fungicides and are used to kill agricultural pests. The EPA estimates that 20,000 pesticides are currently in use in agricultural operations across the country.<sup>20</sup> When improperly used, or used in incorrect quantities, pesticides can poison fish and wildlife, contaminate drinking water and food sources, and destroy habitat.
- **Sediments:** EPA states that the most prevalent source of agricultural water pollution is soil, or sediment, that is washed off fields. Too much sediment in water bodies can cloud the water, reducing necessary sunlight for aquatic plants, clog fish gills, and smother fish larvae. Other agricultural runoff pollutants can become attached to soil particles – facilitating entry into water bodies.
- **Animal Waste:** EPA estimates that 238,000 working farms and ranches are animal feeding operations.<sup>21</sup> These operations allow farmers and ranchers to efficiently feed and maintain livestock, but they also produce an estimated 500 million tons of animal waste each year. Runoff from improperly managed facilities can carry pathogens (bacteria and viruses), nutrients, and solids into water bodies. Water body impairments can ensue as a result of this runoff, and shell-fishing beds can also be negatively affected. Groundwater can be contaminated by waste seepage.
- **Other:** Other agricultural runoff NPS pollution problems are caused by overgrazing by livestock and excessive and inefficient use of irrigation water. Overgrazing can cause erosion that leads to sediment runoff. Overuse of irrigation water, especially in arid areas, can result in the concentration of minerals and salts due to evaporation, erosion, and the transportation of agricultural runoff pollutants.

***Recent Areas of Concern for NPS Pollution Levels:*** Policy choices outside of Federal, State, and local efforts to control nonpoint sources of pollution can, in essence, have a significant impact on efforts to improve overall water quality. For example, partially as a result of rapidly increasing demand for fuel ethanol, corn production is anticipated to greatly expand in coming years. The

<sup>17</sup> Nation Research Council. 2000. *Clean Coastal Waters: Understanding and Reducing the Effects of Nutrient Pollution*.

<sup>18</sup> Officially referred to as methemoglobinemia.

<sup>19</sup> EPA. 2005. “Protecting Water Quality from Agricultural Runoff.” EPA 841-F-05-001. ([http://www.epa.gov/owow/nps/Ag\\_Runoff\\_Fact\\_Sheet.pdf](http://www.epa.gov/owow/nps/Ag_Runoff_Fact_Sheet.pdf))

<sup>20</sup> EPA OIG. 2005. *Limited Knowledge of the Universe of Regulated Entities Impedes EPA’s Ability to Demonstrate Changes in Regulatory Compliance*. Report No. 2005-P-00024, p. 24

<sup>21</sup> EPA. 2005. “Protecting Water Quality from Agricultural Runoff.” EPA 841-F-05-001. ([http://www.epa.gov/owow/nps/Ag\\_Runoff\\_Fact\\_Sheet.pdf](http://www.epa.gov/owow/nps/Ag_Runoff_Fact_Sheet.pdf))

United States Department of Agriculture (USDA) recently announced that in 2007, the amount of cropland dedicated to growing corn will be the largest since 1944. While fuel ethanol is potentially an economically- and environmentally-attractive alternative fuel source, increased corn production may also mean an increased use of fertilizers. This could result in additional agricultural runoff NPS pollution.

In addition, the administration supports converting some of the land currently under the protection of the Conservation Reserve Program into biofuel cropland.<sup>22</sup> As noted below, the Conservation Reserve Program is one of the primary federal tools for limiting the extent and impacts of agricultural runoff.

***Tools for Dealing with Agricultural Runoff:*** A variety of federal programs exist to provide opportunities for the agricultural community to receive funding and assistance to limit agricultural runoff NPS pollution. These programs are generally not regulatory in nature, and instead encourage landowners to adopt best management practices (BMPs) to reduce agricultural runoff NPS pollution. The effectiveness of these programs has been limited somewhat by coordination problems between federal agencies, and incomplete adoption of BMPs by the agricultural community to date.

Federal programs for decreasing agricultural runoff include:

- **US EPA Section 319 Nonpoint Source Grant Program:** Funding for BMPs through local Conservation Districts, government agencies, non-profits, and universities. Different from USDA Farm Bill funding, these funds may also support related activities such as water quality monitoring and watershed coordinators;
- **United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP):** Cost-share assistance for BMPs to improve water quality and conservation;
- **USDA Farm Service Agency (FSA) Conservation Reserve Program:** Assistance with converting cropland to less intensive use, as well as establishing and maintaining conservation practices;
- **USDA FSA Conservation Reserve Enhancement Program (CREP):** Incentive payments including annual rents and cost-share assistance for growing long-term, resource-conserving covers on eligible land.

These federal programs are intended to provide grant funding and technical assistance to states and the agricultural community to encourage the adoption of BMPs. BMPs can help not only to protect water quality but also make farms more efficient and economically productive. BMP activities such as vegetated buffer strips, integrated pest management programs, and the protection of riparian corridors can both help to keep agricultural production efficient as well as prevent the loss of valuable topsoil. Implementation of nutrient management plans can result in the efficient application of agricultural nutrients and cost savings for farmers.

---

<sup>22</sup> Davenport, Coral. 2007. "Ethanol Sparks Corn Row." *CQ Weekly*. (April 9, 2007), p. 1017

Adoption of BMPs by the agricultural community is generally a voluntary process. In a review of federal nutrient reduction programs in the Chesapeake Bay watershed, EPA and USDA's Offices of Inspector General have found that only a limited subset of recommended BMPs in the Chesapeake Bay Program tributary strategies have been adopted by the agricultural community.<sup>23</sup> These recommended tributary strategies are part of the Chesapeake Bay Program and are intended to reduce nutrient and sediment runoff into the Chesapeake Bay watershed. These BMPs are viewed as either unprofitable or as requiring significant changes in farming techniques and have not been widely adopted as a result.<sup>24</sup> The EPA and USDA Offices of Inspector General found that increased coordination between these federal agencies would result in better adoption of these practices, and ultimately reduced agricultural runoff loadings to the Chesapeake Bay.<sup>25</sup> In addition to ineffective agency coordination,<sup>26</sup> agricultural runoff NPS pollution mitigation strategies are handicapped because USDA has not coordinated a Department-wide strategy or policy to address its commitment as a Chesapeake Bay partner.<sup>27</sup>

---

<sup>23</sup> EPA OIG and USDA OIG. 2006. *Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources*. EPA OIG Report No. 2007-P-00004/USDA OIG Report No. 50601-10-Hq. (Executive Summary)

<sup>24</sup> EPA OIG and USDA OIG. 2006. *Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources*. EPA OIG Report No. 2007-P-00004/USDA OIG Report No. 50601-10-Hq. (Executive Summary)

<sup>25</sup> EPA OIG and USDA OIG. 2006. *Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources*. EPA OIG Report No. 2007-P-00004/USDA OIG Report No. 50601-10-Hq. (Executive Summary)

<sup>26</sup> Boesch, Donald F. 2001. Testimony to the U.S. Commission on Ocean Policy, "Addressing Diffuse-Source Pollution of U.S. Coastal Waters." p.4

<sup>27</sup> EPA OIG and USDA OIG. 2006. *Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources*. EPA OIG Report No. 2007-P-00004/USDA OIG Report No. 50601-10-Hq. (Executive Summary)

## APPENDIX

The EPA has a number of programs and tools by which to reduce NPS pollution. This Appendix describes some of these in detail.

***Section 319 Program:*** In 1987, the Congress amended the Clean Water Act to establish the Section 319 Nonpoint Source Management Program. The Section 319 Program requires that states must identify waters that are damaged or threatened by runoff sources, and then develop comprehensive NPS pollution reduction programs to reduce NPS pollution. Section 319 provides grant funding to states, territories, and tribes that goes toward activities such as technical and financial assistance, technology transfer, and monitoring of nonpoint source implementation projects, among other activities. Under the program, States are required to provide performance reports of their NPS programs' performance. Inadequate performance towards these goals may result in the withholding of grant funding. Section 319 is the only federal program to address all sources of NPS pollution. As opposed to United States Department of Agriculture (USDA) NPS pollution programs, Section 319 funds can be used for monitoring and watershed planning. The Section 319 program does not have enforceable policies or mechanisms (such as National Pollutant Discharge Elimination System (NPDES) permits for point source discharges) to implement water quality improvement management measures.

In its FY 2008 budget proposal the Administration proposes funding cuts for the Section 319 program of over \$10 million, or five percent, from FY 2007 enacted levels, to \$194 million.

Through their various water pollution programs, by the end of fiscal year 2006, the EPA and the states restored 12.1 percent of water bodies identified in 2000 as impaired.<sup>28</sup> Based on the 2000 figure of 21,632 impaired water bodies, this still leaves over 19,000 water bodies impaired. However, based off of EPA's most recent figures of 39,768 impaired water bodies (cited in its 2006-2011 Strategic Plan), it would still have to restore over 37,000 existing impaired water bodies. EPA itself states:

“...[S]ome of the restorations to date represent waters where improved assessments have found that the waters were in fact already meeting water quality standards. Thus we anticipate that the numbers of these “easier” restorations will soon decline, as states and EPA begin tackling waters with such complex problems as nonpoint sources or issues related to increasing population growth and changing land use.”<sup>29</sup>

To address these continued, impaired water bodies, EPA's current goal is to restore 2,250 of the 39,798, or 6 percent, of its impaired waters by 2012. EPA plans to address these continued water impairments through continued use and improvement of the watershed approach.

***Total Maximum Daily Load Program:*** Under Section 303 of the Clean Water Act, states, territories, and tribes are required to develop lists of all impaired waters under their jurisdiction. The

---

<sup>28</sup> A water body is designated as impaired if one or more of the “uses” designated in water quality standards is not being attained. Uses are identified by taking into consideration the use and value of the water body for a combination of public water supply, fish, shellfish, and wildlife protection, or for recreational, agricultural, industrial, or navigational purposes.

<sup>29</sup> US EPA Performance and Accountability Report, FY 2006, p.69

Clean Water Act requires that these jurisdictions establish priority rankings and Total Maximum Daily Loads (TMDL) for these impaired water bodies. The TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The TMDL calculation is the sum of the contributions from both point and nonpoint sources. Once the TMDL for a given water body is determined, the appropriate jurisdiction (state, territory, or tribe) develops a plan for implementing point and nonpoint source pollutant reductions to achieve desired water quality standards. A given TMDL calculation is not, in and of itself, an enforceable regulatory standard. Instead, the primary implementation mechanism for the nonpoint source components of a TMDL on a given water body is the Section 319 nonpoint source management program. This program does not, as noted earlier, generally have enforceable mechanisms under the Clean Water Act.

TMDLs are a useful tool for allowing the EPA, the states and others to determine how much of a given pollutant is acceptable in a given water body, and to help to generate appropriate management plans as a result. However, while they were established in the 1972 Clean Water Act, it is only in recent years that EPA has required states to develop them. As a result of nearly 40 legal actions across 38 states, the EPA is under numerous consent decrees or court orders to ensure that TMDLs are established.<sup>30</sup> At the end of 2006, EPA and the states had approved 24,131 TMDLs for impaired water bodies.<sup>31</sup> Each TMDL is written per pollutant, therefore, a given waterbody may have multiple TMDLs “assigned” to it. As a result, EPA has to approve many thousands more TMDLs to address all 39,798 impaired water bodies throughout the nation. EPA anticipates that approximately 3,500 TMDLs will be completed and approved per year in coming years.<sup>32</sup>

***Watershed Approach:*** EPA’s watershed<sup>33</sup> approach is not prescribed by the Clean Water Act, but has been adopted as a management tool to comprehensively address water pollution problems. While the EPA has supported the watershed approach since the early 1990s, it elevated the importance of the tool by designating it as an explicit subobjective in its 2003-2008 Strategic Plan. The watershed approach is a central mechanism in two of EPA’s three key approaches to improving water quality: maintaining strong core programs that emphasize watershed protection; and restoring impaired waters on a watershed basis.<sup>34</sup> EPA’s premise is that many water quality problems are best dealt with at the watershed level rather than by individual waterbody or discharger.<sup>35</sup> The watershed approach is designed to help focus existing, traditional water pollution control programs, such as the point source program, in a more comprehensive manner and address problems such as NPS pollution. According to EPA, the watershed approach is being integrated into its core water programs.

EPA’s watershed approach offers the potential to address point and nonpoint source pollution in a holistic fashion by setting up comprehensive watershed management plans. However, because it is not prescribed through the Clean Water Act, it has not been fully integrated into EPA’s

---

<sup>30</sup> <http://www.epa.gov/owow/tmdl/overviewfs.html>

<sup>31</sup> US EPA Performance and Accountability Report, FY 2006, p.69

<sup>32</sup> US EPA 2006-2011 Strategic Plan. p.47.

<sup>33</sup> A watershed refers to a geographic area in which water drains to a common outlet. The watershed includes not only the water resources, such as streams, rivers, and lakes, but also the land surrounding those resources.

<sup>34</sup> The other area or mechanism that EPA will use to improve water quality is the investment in water infrastructure and the strengthening of management practices to improve the sustainability of water systems. (US EPA 2006-2011 Strategic Plan. p.45)

<sup>35</sup> EPA OIG. 2005. Sustained Commitment Needed to Further Advance Watershed Approach. 2005-P-00025.

core water programs. In its most recent *Accomplishments and Performance Report* (FY 2006), EPA did not meet one of two national outcome performance measures established to determine its success in implementing the watershed approach. In addition, EPA's Office of Inspector General found in 2005 that EPA had not developed other necessary measures to evaluate key programs and activities under its watershed approach program.<sup>36</sup>

---

<sup>36</sup> OIG. 2005. *Sustained Commitment Needed to Further Advance Watershed Approach*. 2005-P-00025. Executive Summary.